

**Technical Note
e-Notification**

No. 03

October 21, 2019

Updated: Jan 29, 2020

April 9, 2020

Technical Note 03

**with Updated Item 3 Bullet 19.2.2,
Updated Bridge Posting Flowchart,
and Updated Item 8**

1. LRFR and LFR/ASR Ratings:

In accordance with the Load Rating Guidance Document (LRGD) Section 6.9.3, all bridges shall be rated using the LRFR methodology initially. If any of the Legal and/or Permit rating factors for LRFR are < 1.0 , then an additional rating analysis shall be performed: ASR for timber/masonry bridges and LFR for all other bridges designed prior to October 1, 2010, unless approved by the State Bridge Maintenance Engineer (SBME) or designated representative. Both sets of rating results should be included in the appropriate worksheets of the “A20.1_South Carolina_LRS_Template_20191021” excel spreadsheet. A new version of this spreadsheet has been posted to the ProjectWise server.

For both of the above cases (LRFR and ASR/LFR ratings), **Section 3 – Bridge Load Rating Summary**, of the LRSF shall be completed with respect to the Legal load rating vehicles:

Controlling Legal Truck – Enter the legal rating vehicle with the lowest rating factor (note: if bridge is on an interstate, the SC SHV vehicles are not considered legal vehicles).

On the LRFR form, this shall be the controlling legal vehicle as determined by the LRFR analysis. On the LFR/ASR form, this cell shall be the controlling legal vehicle as determined by the LFR/ASR analysis at Operating level.

Load Posting Required – On the LRFR form, enter “No” for cases where all LRFR legal vehicle ratings are > 1.0 and posting is not required.

On the LRFR or LFR/ASR form (as applicable), enter “No, see [LRFR or LFR/ASR] form” for cases where one of the two analysis methodologies results in legal ratings < 1.0 while the other results in legal ratings > 1.0 , eliminating the need for posting.

On the LRFR and the LFR/ASR forms, enter “Yes” only if both the LRFR and the ASR/LFR Operating rating factors for the legal trucks are < 1.0 , all posting avoidance measures have been pursued, and the bridge still requires posting.

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*Controlling Legal
Rating Factor –*

On the LRFR form, enter the lowest LRFR legal vehicle rating factor.

On the LFR/ASR form, enter the lowest ASR/LFR legal vehicle rating factor (at Operating level).

Rating Example 1: all LRFR legal and permit ratings > 1.0

- No LFR/ASR analysis required
- Load posting is not required

Rating Example 2: all LRFR legal ratings > 1.0; one or more LRFR permit ratings < 1.0

- Perform an LFR/ASR analysis. If one or more permit ratings at the LFR/ASR Operating level are < 1.0, impact factor reductions shall not be considered. Permit rating factors < 1.0 shall be reported as-is on the LRS form.
- Include a signed and sealed LFR/ASR rating summary with the signed and sealed LRFR rating summary and all other load rating deliverables.
- Load posting is not required.

Rating Example 3: one or more LRFR legal ratings < 1.0; all LRFR permit ratings > 1.0

Note: for interstate bridges, the SC SHVs are not legal loads and, therefore, they do not need to meet the legal load rating requirements as shown in these examples

- Perform an LFR/ASR analysis.
 - If legal ratings at the LFR/ASR Operating level are all > 1.0, no further action is required. Include a signed and sealed LFR/ASR rating summary with the signed and sealed LRFR rating summary and all other load rating deliverables.
 - Load posting not required.

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- If one or more legal ratings at the LFR/ASR Operating level are < 1.0 , perform the posting avoidance options as outlined in LRGD Section 19.2. Submit a BMO Approval Form for the option(s) to be utilized.
 - If posting avoidance option(s) results in legal ratings > 1.0 (for LRFR at the Legal level and/or for LFR/ASR at the Operating level), then posting is not required.
 - Otherwise, load posting is required in accordance with LRGD Section 19.3 thru 19.6. Refer to Section #2 of this Technical Note for more information on posting.
 - Document all posting avoidance measures in the “Remarks” section of the LRSF.
 - Include a signed and sealed LFR/ASR rating summary with the signed and sealed LRFR rating summary and all other load rating deliverables.

Example 4: one or more LRFR legal ratings < 1.0 ; one or more LRFR permit ratings < 1.0

- Perform an LFR/ASR analysis.
 - If all legal ratings at the LFR/ASR Operating level are all > 1.0 , no further action is required. Include a signed and sealed LFR/ASR rating summary with the load rating deliverables. Load posting is not required.
 - If one or more legal ratings at the LFR/ASR Operating level are < 1.0 , perform the posting avoidance options as outlined in LRGD Section 19.2. Submit a BMO Approval Form for the option(s) to be utilized.
 - If posting avoidance option(s) results in legal ratings > 1.0 (for LRFR at the Legal level or LFR/ASR at the Operating level), then posting is not required.
 - Otherwise, load posting is required in accordance with LRGD Section 19.3 thru 19.6. Refer to Section #2 of this Technical Note for more information on posting.
 - Document all posting avoidance measures in the “Remarks” section of the LRSF.
 - Include a signed and sealed LFR/ASR rating summary with the signed and sealed LRFR rating summary and all other load rating deliverables.

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- If one or more permit ratings at the LFR/ASR Operating level are < 1.0 , impact factor reductions shall not be considered. Permit rating factors < 1.0 shall be reported as-is on the LRS form.

Readers are also directed to the Bridge Posting Flowchart, **previously** shown below **and now updated in Technical Note 06**, for more detailed step-by-step information with respect to the posting process.

2. Load Posting Signs:

An additional worksheet entitled **Posting Summary** has been added to the “A20.1_South Carolina_LRS_Template_20191021” spreadsheet to assist the load rating engineer in completing the Bridge Signing/Posting Form from LRGD Appendix A19.1. The new version of this spreadsheet has been posted to the ProjectWise server. The “Posting Summary” worksheet is linked to the rating results from the “LFRF Summary” and “ASR-LFR Summary” worksheets.

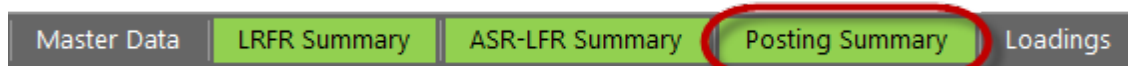


Figure 1 – New Posting Summary Worksheet

The load rating engineer shall select the posting methodology (cell E3) which produces the more favorable posting results. Cell E5 is linked to the “Bridge Description Input” worksheet and is used to determine the applicability of the SC SHV vehicles as it relates to posting.

This worksheet shall be considered a tool to assist with completing the Bridge Signing/Posting Form. It is ultimately the responsibility of the load rating engineer and the engineer of record to ensure the proper posting values are used for the bridge under consideration.

A screenshot of an Excel spreadsheet titled 'LFR BRIDGE POSTING SUMMARY'. The spreadsheet has columns A through G and rows 1 through 6. In row 1, the SCDOT logo is in cell A1 and the title 'LFR BRIDGE POSTING SUMMARY' is in cell D1. In row 3, there is a text box in cell B3 with the label 'Choose Posting Methodology:' and a dropdown menu in cell E3 showing 'LFR'. In row 5, there is a text box in cell B5 with the label 'Is the bridge on an interstate route?' and a dropdown menu in cell E5 showing 'Yes'. The rows are numbered 1 through 6 on the left side.

Figure 2 – Posting Summary “user input” cells

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SCDOT LRFR BRIDGE POSTING SUMMARY								
Choose Posting Methodology:				LRFR				
Is the bridge on an interstate route?				Yes				
Vehicle Type	Axle Configuration	Posting Vehicle	GVW (tons)	Rating Factor	Posting Limit (tons)	Single Axle (tons)	Tandem Axle (tons)	
Single Unit	2 Axles	SC-SU2	20	1.657	-			
		SC Representative School Bus	17.525	1.957	-			
	3 Axles	SC-SHV14	32.5	-	-			
		SC-SHV16	35	-	-			
		SC-Type 3 (AASHTO Modified)	25	1.298	-			
		SC-SHV24	33	-	-			
		SC-SHV26	30	-	-			
		4 or More Axles	SU4	27	1.153			-
			SU5	31	1.060			-
			SU6	34.75	0.952			32
SU7	38.75		0.879	32				
Combination Unit	5 or More Axles	SC-SHV34	42.5	-	-			
		SC-SHV36	45	-	-			
		SC - Type 3S2 (AASHTO Modified)	36.6	1.343	-			
		Type 3-3	40	1.482	-			
		Lane Type Legal Load (Neg. Moment)	40	-	-			
		Lane Type Legal Load (Span > 200')	40	-	-			
Emergency Vehicles	2 Axles	EV2	28.75	1.151	32	16	23	
	3 Axles	EV3	43	0.747				

Posting Check:

Posting is required

Posting Signs

BRIDGE WEIGHT LIMIT - TONS

SINGLE VEHICLE

2 OR 3 AXLES 25 T

4 OR MORE AXLES 32 T

COMBINATIONS 40 T

EMERGENCY VEHICLE WEIGHT LIMITS

SINGLE AXLE 16 T

TANDEM 23 T

GROSS 32 T

Figure 3 – Posting Signs Auto-Populated by the Worksheet

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3. LRGD Appendix A20.2 – BMO Approvals Form:

The “SECTION 4: COMMENTS (REQUESTOR)” section of all BMO approval forms should contain:

- a description of the request and justification for the request

In order to accommodate efficient and productive reviews of the submitted BMO Approvals Form(s), additional documentation is required to be submitted along with the BMO Approval Form, as described below.

3.3 – Approval for using load rating software other than BrR

- No additional documentation

14.3 – Approval for using load rating software other than BrR to rate concrete/masonry substructure

- No additional documentation

15.3 – Approval for using load rating software other than BrR to rate steel substructure

- No additional documentation

16.3 – Approval for using load rating software other than BrR to rate timber substructure

- No additional documentation

18.2.1 – Approval for using load rating software other than BrR for complex bridge rating

- No additional documentation

5.6 – Approval to perform Site Assessment

- N/A

*6.7.1 – Approval to use alternate impact factor allowance - **Do not utilize this section.***

- An alternate impact allowance for design and legal loads will not be considered. Load raters are instructed to not request approval for a reduced impact.

6.9.3 & 19.2.3 – Alternate rating method to LRFR for bridges designed after October 1, 2010

- No additional documentation

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6.10.1 – Approval to use alternate impact factor allowance - Do not utilize this section.

- An alternate impact allowance for permit loads will not be considered. Load raters are instructed to not request approval for a reduced impact.

6.11.3.2 – Approval of rating factors < 1.0 from use of MBE Table 6A.4.3.4-1 system factors

- LRS Form
- BrR .xml file
- Bridge Plans

6.12 & 19.2.1 – Approval for load testing, NDT, or material testing to improve rating

- TBD

11.2.1.1 – Approval to use top or bottom flange lateral bracing members in 3D or grid analysis

- Bridge plans

11.2.1.1 – Approval to consider top flanges of through girder bridge as braced

- Bridge plans
- Supporting analysis and/or calculations providing justification

17.2.1 – Coordination of culvert load ratings with large fills, showing signs of distress and carrying normal traffic for an appreciable period

- Culvert plans
- BrR .xml file
- LRS Form
- Summary of recommended procedure/plan/analysis/etc. to determine appropriate rating factor

19.1 & 19.3 – Approval for posting avoidance options

- Bridge plans
- BrR .xml file
- LRS Form without proposed posting avoidance option(s)
- LRS Form with proposed posting avoidance option(s)
- Justification for applying the posting avoidance option(s)

~~*19.2.2 – Approval to ignore Service III limit state*~~

- ~~• Bridge plans~~

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- ~~BrR .xml file with two member alternatives defined for each girder: one alternative which includes the SVC III check and one which does not.~~
- ~~LRS Form with the Service III check~~
- ~~LRS Form without the Service III check~~
- ~~Justification for ignoring Service III concrete tension (i.e., the latest bridge inspection report and/or site assessment data documenting prestressed girders which do not show signs of flexural and/or shear distress and do not exhibit cracking under normal traffic and any reasons(s) the load rating engineer believes salt intrusion is not expected to be a concern at the bridge location)~~

19.2.4 – BMO notified of discrepancies which invalidate a previous rating which accounted for the traffic barrier stiffness

- Bridge plans
- Inspection report and/or site assessment documenting the discrepancy
- Existing analysis and calculations accounting for traffic barrier stiffness
- Existing LRS Form

19.5 – BMO notified if the recommended posting is below the Operating capacity

- LRS Form
- Bridge Posting Form
- Justification for posting below Operating capacity

4. Load Cases:

The following load cases will be used to distinguish between the different kinds of loads on the bridge. Sign loads input in AASHTOWare BrR shall utilize the Sign Load (DW) load case.

Load Case Name	Description	Stage	Type	Time* (Days)
DC1	DC acting on non-composite section	Non-composite (Stage 1)	D,DC	
DC2	DC acting on long-term composite section	Composite (long term) (Stage 2)	D,DC	
DW	DW acting on long-term composite section	Composite (long term) (Stage 2)	D,DW	
SIP Forms (DC1)	Weight due to stay-in-place forms	Non-composite (Stage 1)	D,DC	
Haunch (DC1)	Weight due to haunch	Non-composite (Stage 1)	D,DC	
Parapet (DC2)	Weight due to parapet	Composite (long term) (Stage 2)	D,DC	
Sign Load (DW)	Weight due to sign	Composite (long term) (Stage 2)	D,DW	

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5. Plan Notes vs LRGD:

The plans notes shall override the Load Rating Guidance Document (LRGD) when applicable. The inputter will need to utilize all the notes on the plans before referring to the LRGD for guidance or making assumptions.

Example: The LRGD gives direction for sacrificial thickness for decks based on year constructed. Plan notes may indicate the sacrificial thickness to be used. Make sure to use the plan notes.

LRGD: and consider the top 2 1/4" as effective for bridges designed after February 14, 1996, unless noted otherwise on the as-built plans.

Plan Notes:

CONCRETE
THE CLASS OF CONCRETE SHALL BE AS NOTED ON OTHER SHEETS OF THESE PLANS.
BUILD-UPS ON BENT CAPS SHALL BE CAST MONOLITHIC WITH CAP UNLESS INDICATED OTHERWISE IN THESE PLANS. THE TOP OF EACH BUILD-UP SHALL BE LEVEL.
PAYMENT FOR CONCRETE IN SLAB WILL BE BASED ON THEORETICAL PLAN QUANTITY. ANY NECESSARY ADJUSTMENT IN QUANTITY DUE TO VARIATION IN CAMBER SHALL BE AT THE CONTRACTOR'S EXPENSE.
SIMPLE SPANS 80 FEET OR LESS SHALL BE POURED WITHOUT A TRANSVERSE CONSTRUCTION JOINT. FOR SIMPLE SPANS OVER 80 FEET IN LENGTH, A TRANSVERSE STRIP OF THE SLAB, CENTERED AT MID-SPAN AND COMPRISING APPROXIMATELY 2/3 OF THE SLAB SHALL BE POURED FIRST AND ALLOWED TO CURE FOR NOT LESS THAN 4 DAYS BEFORE THE REMAINING END SECTIONS ARE POURED. HOWEVER, WHEN FAVORABLE WEATHER CONDITIONS EXIST, THE ENGINEER MAY PERMIT THE ENTIRE SLAB TO BE POURED PROVIDED A SUITABLE RETARDING AGENT IS USED IN SUCH AMOUNTS THAT NONE OF THE CONCRETE OF THE POUR SHALL REACH INITIAL SET PRIOR TO COMPLETION OF THE POUR.
ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4" UNLESS OTHERWISE NOTED.
THE MINIMUM ACCEPTABLE CONCRETE COVER FOR REINFORCING STEEL MAY BE ONE HALF INCH LESS THAN THE PLAN DIMENSIONS WHEN REQUIRED BY REINFORCING BAR FABRICATION TOLERANCES.
THE TOP ONE FOURTH INCH OF ALL CONCRETE SLABS SHALL BE CONSIDERED AS A WEARING SURFACE AND SHALL NOT BE INCLUDED IN THE SLAB DEPTH USED FOR THE CALCULATION OF SECTION PROPERTIES.

6. Wearing Surface:

If the wearing surface has been measured in the field by the Site Assessment (SA) team, the load rater shall check the "Thickness field measured" box to reduce the wearing surface load factor.

Wearing surface material:	asphalt overlay
Description:	
Wearing surface thickness =	3.5000 in <input checked="" type="checkbox"/> Thickness field measured (D/W = 1.25 if checked)
Wearing surface density =	140.000 pcf
Load case:	D/W
<button>Copy from Library...</button>	

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7. AASHTOWare BrR Description Window:

Values used in the general description window should match the National Bridge Inventory (NBI) Datasheet:

Bridge ID: 03486 NBI Structure ID (B): 03486 ☐ Template ☒ Bridge Completely Defined ☒ Superstructures ☒ Culverts

Description (cont'd) Alternatives Global Reference Point Traffic Custom Agency Fields

Name: 03486 Year Built: 1960

Description: As-Built created by Michael Baker International (GLS) [2019-08-09]
As-Built checked by Michael Baker International (xxx) [2019-xxxx]

Location: S.O. MINE Woodruff Length: 400.00 ft

Facility Carried (I): I-26 EB Route Number: 00026 (5-digit route #)

Feat. Intersected (B): South Tiger River Mi. Post: 33.26

Default Units: US Customary

Bridge ID: 03486 NBI Structure ID (B): 03486 ☐ Temp ☒ Bridge

Description Description (cont'd) Alternatives Global Reference Point Traffic Cust

X = 0.000 ft
Y = 0.000 ft
Elevation = 0 ft
Longitude = 81.95 Degrees
Latitude = 34.76 Degrees

Bridge ID: 03486 NBI Structure ID (B): 03486 ☐ Template ☒ Bridge Complete

Description Description (cont'd) Alternatives Global Reference Point Traffic Custom Agency

Truck PCT: 18 %
ADT: 13750
Directional PCT: 100.0 %
Recent ADTT: 2475
Design ADTT:
Est. annual traffic growth rate: %
Fatigue importance factor: Main Arterial, Interstate, Other
☐ Importance factor override

2018 National Bridge Inventory			
Bridge Report			
Bridge Identification:			
Structure Number: 3486			
(001) State:	SC	(009) Location:	S.O. MINE WOODRUFF
(003) County:	Spartanburg		
(002) Highway Agency Dist:	3		
(007) Facility Carried:	I-26 EB		
(006) Facility Crossed:	SOUTH TYGER RIVER	(5C) Level of Service:	Mainline
(016) Latitude:	34° 45' 51.64"	(5D) Route Signing Prefix:	Interstate Highway
(017) Longitude:	081° 57' 14.43"	(5E) Route Number:	026
		(5F) Directional Suffix:	East
(011) Kilometer Point:	33.26A	(13A) LRS Inventory Route:	001-000200
(012) Base High. Network:	Route on base highway network	(13B) Subroute:	00
(009) Border Br. Struct. No:	N/A	(98A) Neighbor State Code:	N/A
		(98B) % Responsibility:	N/A
Classification:			
(112) NBIS Bridge Length:	Yes	(105) Federal Lands Hwy:	N/A
(104) Hwy Sys of Inv Rte:	N/A	(110) Design National Netw:	Part of national network for trucks
(026) Functional Class:	Rural - Principal Arterial - Interstate	(020) Toll:	On free road
(100) STRAHNET Design:	On Interstate STRAHNET route	(021) Maintenance Respons:	State Highway Agency
(101) Parallel Design:	Right Bridge	(022) Owner:	State Highway Agency
(102) Direction of Traffic:	1-way traffic	(023) Historical Value:	Not eligible for National Register
(103) Temp Span Design:	N/A		
Age and Service:			
(027) Year Built:	1960	(045) # Main Spans:	0
(140) Year Reconst:	1995	(43A) Main Struct Material:	Prestressed concrete
(42A) Type Serv on Bridge:	Highway	(43B) Main Struct Type:	Stringer/Multi-beam or Girder
(42B) Type Serv under Br:	Waterway	(046) # Appr Spans:	0
(26A) # Lanes on Struct:	2	(44A) Appr Struct Material:	N/A
(26B) # Lanes under Struct:	0	(44B) Appr Struct Type:	N/A
(029) ADT & (030) Year:	13750 2017	(107) Deck Struct Type:	Concrete Cast-in-Place
(109) Truck ADT:	18 %	(108A) Type Wearing Surf:	Monolithic Concrete
(019) Bypass Dist. Length:	1.2 miles	(108B) Type Membrane:	None
		(108C) Deck Protection:	Unknown
Geometric Data:			
(048) Max Span Length:	40.0 ft	(038) Navigation Cont:	No navigation control on waterway
(049) Struct Length:	400 ft	(039) Nav Vert Clear:	0 ft
(050) Sidewalk Right:	0 ft	(040) Nav Horiz Clear:	0 ft
(05A) Sidewalk Left:	0 ft	(111) Nav Pier Prot:	N/A
(051) Curb to Curb:	44 ft		
(052) Deck Out to Out:	46.0 ft		

Values used in the general description "con't" window should match the NBI Datasheet:

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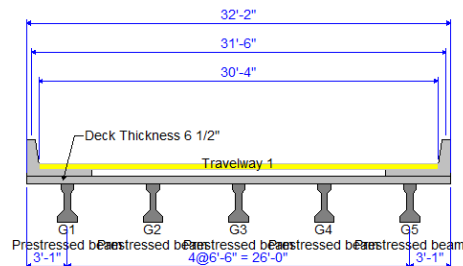
2018 National Bridge Inventory			
Bridge Report			
Bridge Identification:			
Structure Number: 10061		(009) Location: 6.3 MI NW GREENVILLE	
(001) State: SC	(003) County: Greenville	(009) Location: 6.3 MI NW GREENVILLE	
(002) Highway Agency Dist: 3	(007) Facility Carried: C-23-1064	(5C) Level of Service: Mainline	
(006) Facility Crossed: I-385	(008) Facility Prefix: 1064	(5B) Route Signing Prefix: County Highway	
(016) Latitude: 34° 48' 53.83"	(017) Longitude: 82° 17' 22.14"	(5D) Route Number: 1064	(5E) Directional Suffix: N/A
(011) Kilometer Point: 0.763	(13A) LRS Inventory Route: 0000000000	(13B) Subroute: 00	(13C) Inventory Route: 00
(012) Base High. Network: Route not on base highway network	(13A) LRS Inventory Route: 0000000000	(13B) Subroute: 00	(13C) Inventory Route: 00
(099) Border Br. Struct. No: N/A	(98A) Neighbor State Code: N/A	(98B) % Responsibility: N/A	(98C) % Responsibility: N/A
Classification:			
(112) NBIS Bridge Length: Yes	(105) Federal Lands Hwy: N/A	(110) Design National Netw: Not part of national network for trucks	(111) Design National Netw: On free road
(104) Hwy Sys of Inv Rte: Not on NHS	(106) Design National Netw: Not part of national network for trucks	(110) Design National Netw: On free road	(111) Design National Netw: On free road
(026) Functional Class: Urban - Local	(021) Maintenance Respons: County Highway Agency	(022) Owner: County Highway Agency	(023) Historical Value: Not eligible for National Register
(100) STRAIGHT Design: Not on STRAIGHT route	(021) Maintenance Respons: County Highway Agency	(022) Owner: County Highway Agency	(023) Historical Value: Not eligible for National Register
(101) Parallel Design: Not parallel structure	(021) Maintenance Respons: County Highway Agency	(022) Owner: County Highway Agency	(023) Historical Value: Not eligible for National Register
(102) Direction of Traffic: 1-way traffic	(021) Maintenance Respons: County Highway Agency	(022) Owner: County Highway Agency	(023) Historical Value: Not eligible for National Register
(103) Temp Struc Design: N/A	(021) Maintenance Respons: County Highway Agency	(022) Owner: County Highway Agency	(023) Historical Value: Not eligible for National Register
Age and Service:			
(027) Year Built: 1980	(045) # Main Spans: 1	(43A) Main Struct Material: Steel continuous	(43B) Main Struct Type: Stringer/Multi-beam or Girder
(106) Year Recon: N/A	(045) # Main Spans: 1	(43A) Main Struct Material: Steel continuous	(43B) Main Struct Type: Stringer/Multi-beam or Girder
(42A) Type Serv on Bridge: Highway	(045) # Main Spans: 1	(43A) Main Struct Material: Steel continuous	(43B) Main Struct Type: Stringer/Multi-beam or Girder

Preliminary			
Bridge ID: 10061 NBI Structure ID (B): 10061			
Description		Alternatives	Global Reference Point
District (2): District 3		Alternatives	Global Reference Point
County: 23 Greenville		Alternatives	Global Reference Point
Owner (22): County Hwy Agency		Alternatives	Global Reference Point
Maintainer: County Hwy Agency		Alternatives	Global Reference Point
Admin Area:		Alternatives	Global Reference Point
NHS Indicator: 0 Not on NHS		Alternatives	Global Reference Point
Functional Class: 19 Urban Local		Alternatives	Global Reference Point

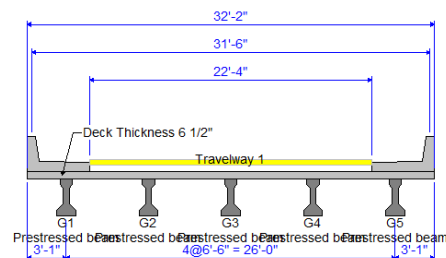
8. Sidewalks and Pedestrian Loading:

Sidewalks

If the traffic face of the sidewalk is **< 6" high**, assume the sidewalk can be mounted by trucks and define the travelway from face-to-face of barrier in AASHTOWare BrR:



If the traffic face of sidewalk is **≥ 6" high**, assume the sidewalk cannot be mounted by trucks and define the travelway from face-to-face of sidewalk in BrR:



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9. Minimally Stressed P/S Strands

Minimally stressed top strands are not input in the prestressing profile as fully stressed strands in AASHTOWare BrR.

10. Variable Overhangs

For bridges with variable overhangs, the average overhang may width be used in AASHTOWare BrR. Add this to the list of assumptions on the Load Rating Summary Form (LRSF) if the average overhang width is used.

The following Help Desk e-Notifications are incorporated into this Technical Note.

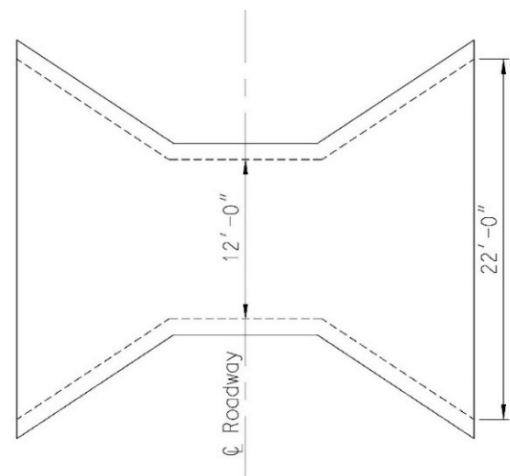
11. Help Desk e-Notification 011 – How to Handle Data Correction where Structure Length Becomes < 20 feet

Question:

During the Data Correction Task, if it is found that the value for FHWA coding guide Item 49, Structure Length gets corrected from the incorrect value of more than 20 feet to a correct value which happens to be less than 20 feet, should this bridge or culvert be removed from the list?

If so, what is the process? Should the Data Correction be made in the Bridge Inspection Online (BIO) system and the Data Correction Form submitted to document the change, and then remove the bridge or culvert as described in Help Desk e-Notification 010?

For example, a culvert is coded as 22 feet long. As per FHWA coding guide, Item 49 is the clear distance between inside surface of outer walls of the culvert measured along the centerline of roadway, resulting in a corrected Item 49 value of 12 feet.



**Technical Note
e-Notification**

No. 03

October 21, 2019

Updated: Jan 29, 2020

April 9, 2020

Technical Note 03

**with Updated Item 3 Bullet 19.2.2,
Updated Bridge Posting Flowchart,
and Updated Item 8**

Answer:

Yes, culvert and pipe structures encountered matching this general description should be removed. First the Data Correction should be reported in ProjectWise to document the change, then updated in BIO, and finally the structure should be removed following the process outlined in Help Desk e-Notification 010.

Per the FHWA Coding Guide, culvert length is measured along the centerline of roadway between inside faces of exterior walls. Culverts that measure less than 20 feet along the center line of roadway, regardless of maximum span length (see example sketch), shall be classified as Non-NBI Bridges and do not require a load rating.

12. Help Desk e-Notification 019 – Data Correction Items 63 to 66 & 418

Question:

Since the AASHTO Load Resistance Factor Rating (LRFR) is the default load rating method required for SCDOT load ratings, National Bridge Inventory (NBI) Items 63 & 65 will be coded as 3 (LRFR), and Items 64 & 66 will be the governing HL-93 ratings (rating factor x 36 tons as presented in the AASHTOWare BrR results).

- A. When the AASHTO Load Factor Rating (LFR) is used as a posting avoidance measure, should items 63 to 66 still be coded as the HL-93 ratings for the LRFR method? Or should the LFR ratings for HS-20 be presented in such cases?
- B. The NBI Coding Guide states that rating values for Items 64 & 66 are to be in metric tons. Should these be entered in US units instead, consistent with other NBI data items in Bridge Inventory Online (BIO)?
- C. The structure condition ratings are already listed in Items 58 to 62. Should Item 418 Conditions During Rating be left blank? If not, please state how this item should be coded?

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Answer:

- A. Items 63 to 66 should always be coded using the HL-93 LRFR ratings. If LFR is used for posting avoidance, still report items 63 to 66 using the HL-93 LRFR factors.
- B. NBI 64 and 66 should be reported as a rating factor. Refer to Help Desk e-Notification 023.
- C. Item 418 should be filled out using the bridge inspection report and the site assessment. The information is 418 is the data entered in 58, 59, and 60. For example: 7, 8, 8. For culverts, the first digit is the culvert rating and the last two digits are blank. Refer to the LRGD Data Correction Form Instructions.

13. Help Desk e-Notification 020 – Culvert Wall Ratings with RFs Below 1.0

Question:

The Load Rating Guidance Document (LRGD) 17.2.1, paragraph 1 states that if the AASHTOWare BrR rating factor is 0.00, and the wall reinforcing governs the rating, increase reinforcing by 20% until the wall does not control the ratings, if the culvert carries normal traffic with no distress.

If the wall ratings govern and the rating factors for posting trucks are greater than zero but less than 1.0, can the wall reinforcing be increased by 20% until the wall no longer governs or the rating factors go above 1.0, since the intent of the above referenced paragraph is to eliminate the wall rating from governing on low-rated culverts?

Answer:

Please refer to the latest version of the following file, now located in the SCDOT Load Rating project "Reports to File\SCDOT LR Files" ProjectWise folder. As a reminder, please check the sites often for updates, as there will not always be regular notices of updates.

SCDOT LR Culvert Guidance.pdf

Please direct any questions concerning the above to:

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Archived copies of SCDOT_LR_Help_Desk Technical Notes can be obtained from the SCDOT Load Rating Help Desk website at https://projects.mbakerintl.com/SCDOT_BLR/ and by clicking on the "Technical Notes" link.